

Facility name: Greenacres Landfill (aka Liberty Lake Landfill)

Location: Spokane Co. Wa Sec 16 T25N R45E

EPA Region: 10

Person(s) in charge of the facility: Spokane County

Name of Reviewer: H. Alder Date: 6/29/83

General description of the facility:  
 (For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Landfill formerly receiving up to 50000 cu/yds/year  
of domestic commercial and industrial waste  
from Spokane. Well immediately downslope from  
landfill (closed 1972) shows low but increasing  
levels of trans-dichloroethylene, trichloroethylene &  
perchloroethylene. Site source aquifer serves large  
population and is major irrigation source.

28.90 50.00  
 Scores:  $S_M = 0$  ( $S_{TW} = 0$ )  $S_{SW} = 0$   $S_2 = 0$   
 $S_{FE} = 0$   
 $S_{DC} = 0$

FIGURE 1  
HRS COVER SHEET

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0 <b>45</b>	1	<b>45</b>	45	3.1	
If observed release is given a score of 45, proceed to line <b>4</b> . If observed release is given a score of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 3	2		6		
Net Precipitation	0 1 2 3	1		3		
Permeability of the Unsaturated Zone	0 1 2 3	1		3		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score			<b>—</b>	15		
<b>3</b> Containment	0 1 2 3	1	<b>—</b>	3	3.3	
<b>4</b> Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 <b>12</b> 15 18	1	<b>12</b>	18		
Hazardous Waste Quantity	0 <b>1</b> 2 3 4 5 6 7 8	1	<b>1</b>	8		
Total Waste Characteristics Score			<b>13</b>	26		
<b>5</b> Targets					3.5	
Ground Water Use	0 1 2 <b>3</b>	3	<b>9</b>	9		
Distance to Nearest Well/Population Served	0 4 8 12 16 18 20 24 30 32 35 <b>40</b>	1	<b>40</b>	40		
Total Targets Score			<b>49</b>	49		
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>3</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>			<b>28665</b>	57,320		
<b>7</b> Divide line <b>6</b> by 57,320 and multiply by 100			<b>S<sub>gw</sub> = 50.00</b>			

FIGURE 2  
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0      45	1		45	4.1	
If observed release is given a value of 45, proceed to line <b>4</b> . If observed release is given a value of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics					4.2	
Facility Slope and Intervening Terrain	0 1 2 3	1		3		
1-yr. 24-hr. Rainfall	0 1 2 3	1		3		
Distance to Nearest Surface Water	0 1 2 3	2		6		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score				15		
<b>3</b> Containment	0 1 2 3	1		3	4.3	
<b>4</b> Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 9 12 15 18	1		18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8		
Total Waste Characteristics Score				26		
<b>5</b> Targets					4.5	
Surface Water Use	0 1 2 3	3		9		
Distance to a Sensitive Environment	0 1 2 3	2		6		
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1		40		
Total Targets Score				55		
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>				64,350		
<b>7</b> Divide line <b>6</b> by 64,350 and multiply by 100			$S_{sw} = 0$			

FIGURE 7  
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0      45	1		45	5.1	
Date and Location:						
Sampling Protocol:						
If line <b>1</b> is 0, the $S_a = 0$ . Enter on line <b>5</b> . If line <b>1</b> is 45, then proceed to line <b>2</b> .						
<b>2</b> Waste Characteristics					5.2	
Reactivity and Incompatibility	0 1 2 3	1		3		
Toxicity	0 1 2 3	3		9		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8		
Total Waste Characteristics Score:				20		
<b>3</b> Targets					5.3	
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30		
Distance to Sensitive Environment	0 1 2 3	2		6		
Land Use	0 1 2 3	1		3		
Total Targets Score				39		
<b>4</b> Multiply <b>1</b> x <b>2</b> x <b>3</b>					35,100	
<b>5</b> Divide line <b>4</b> by 35,100 and multiply by 100				$S_a = 0$		

FIGURE 9  
AIR ROUTE WORK SHEET

	S	S <sup>2</sup>
Groundwater Route Score (S <sub>gw</sub> )	50.00	2500.00
Surface Water Route Score (S <sub>sw</sub> )		
Air Route Score (S <sub>a</sub> )		
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2500.00
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		50.00
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		28.90

FIGURE 10  
WORKSHEET FOR COMPUTING S<sub>M</sub>

Fire and Explosion Work Sheet							
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Containment	1	3	1		3	7.1	
<b>2</b> Waste Characteristics							7.2
Direct Evidence	0	3	1		3		
Ignitability	0	1 2 3	1		3		
Reactivity	0	1 2 3	1		3		
Incompatibility	0	1 2 3	1		3		
Hazardous Waste Quantity	0	1 2 3 4 5 6 7 8	1		8		
Total Waste Characteristics Score					20		
<b>3</b> Targets							7.3
Distance to Nearest Population	0	1 2 3 4 5	1		5		
Distance to Nearest Building	0	1 2 3	1		3		
Distance to Sensitive Environment	0	1 2 3	1		3		
Land Use	0	1 2 3	1		3		
Population Within 2-Mile Radius	0	1 2 3 4 5	1		5		
Buildings Within 2-Mile Radius	0	1 2 3 4 5	1		5		
Total Targets Score					24		
<b>4</b> Multiply <b>1</b> x <b>2</b> x <b>3</b>					1,440		
<b>5</b> Divide line <b>4</b> by 1,440 and multiply by 100					SFE = <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">0</span>		

**FIGURE 11  
FIRE AND EXPLOSION WORK SHEET**



Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
<b>1</b> Observed Incident	0	45	1		45	8.1
If line <b>1</b> is 45, proceed to line <b>4</b> If line <b>1</b> is 0, proceed to line <b>2</b>						
<b>2</b> Accessibility	0	1	2	3	1	3
<b>3</b> Containment	0	15	1		15	8.3
<b>4</b> Waste Characteristics Toxicity	0	1	2	3	5	15
<b>5</b> Targets						8.5
Population Within a 1-Mile Radius	0	1	2	3	4	5
Distance to a Critical Habitat	0	1	2	3	4	
Total Targets Score						32
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>						21,600
<b>7</b> Divide line <b>6</b> by 21,600 and multiply by 100 <span style="float: right;">SDC = <input type="text"/></span>						

FIGURE 12  
DIRECT CONTACT WORK SHEET

EPA REGION X  
DOCUMENTATION RECORDS  
FOR  
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME:

Greensacres Landfill.

LOCATION:

Spokane Co. Washington

CA



GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

(b) (6)

Well (see attachment)

*trans - dichloroethylene*  
*trichloroethylene*  
*tetrachloroethylene*

DOE file

Spokane Co Health District

EPA Laboratory

Spokane Aquifer Monitoring Program

Rationale for attributing the contaminants to the facility:

*Found in well immediately downhill & downgradient  
from landfill*

(SPOKANE CO. HEALTH DISTRICT INTER-OFFICE COMMUNICATION, 6/7/83 -  
SAMPLES COLLECTED 9/13/80 TO 1/26/83 - 12 SAMPLES)

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

NOT APPLICABLE DUE TO  
OBSERVED RELEASE

Name/description of aquifer(s) of concern:

*Spokane Valley aquifer*

Depth(s) from the ground surface to the highest seasonal level of the  
saturated zone [water table(s)] of the aquifer of concern:

*84-126 - municipal well logs on file (from DOE files)*

Depth from the ground surface to the lowest point of waste disposal/  
storage:

*Uncertain*

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

Annual - 24" (Climatic Atlas of United States)  
Nov-April 10.5"

Mean annual lake or seasonal evaporation (list months for seasonal):

Annual 57" (CA of U.S.)  
Nov-April 6.66" (18%).

Net precipitation (subtract the above figures):

Annual - 13"  
Seasonal 3.84"

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Sand and gravel

Permeability associated with soil type:

High  $> 10^{-3}$  cm/sec.

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

Liquid

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## CONTAINMENT

### Containment

Method(s) of waste or leachate containment evaluated: NOT APPLICABLE DUE TO OBSERVED RELEASE

N/A

Method with highest score:

N/A

## 4 WASTE CHARACTERISTICS

### Toxicity and Persistence

Compound(s) evaluated:

	<u>TOXICITY</u>	<u>PERSISTENCE</u>
Tetrachloroethylene	2	2
Trichloroethylene	2	2
trans-dichloroethylene	2	2

Compound with highest score:

All moderate toxicity except via i.v. route

~~All persistent (with instructions)~~

ALL ABOVE = 12  
COMPOUNDS

### Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Unknown.

Basis of estimating and/or computing waste quantity:

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5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

- ① Drinking, domestic & municipal
- ② Irrigation

( WATER RIGHTS FILES, SPOKANE CO. HEALTH DISTRICT, SPOKANE CO. - CONDENSED  
Distance to Nearest Well COMPUTER REPORT pp. 315-321)

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

(b) (6)

*well contaminated*

Distance to above well or building:

0 WELL LOCATED WITHIN EXTENDED SITE BOUNDARIES

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

- ① Liberty Lake, senior district 400 houses  $\pm$  3.8 persons/house = 1520 - <sup>HOUSE C</sup> FROM
- ② Consolidated Irrigation District (4000 people) ~~1000-2000 acres irrigated~~  
(includes U.S. Bureau of Reclamation) (809-924-3655)

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

- ① Not less than 1000 acres - Consolidated Irrigation District
- ② at least 2000 acres in addition: T25N R45E Sections 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 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618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 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## SURFACE WATER ROUTE

### 1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

*NONE*

Rationale for attributing the contaminants to the facility:

★ r ★

### 2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

*N/A*

Name/description of nearest downslope surface water:

Average slope of terrain between facility and above-cited surface water body in percent:

Is the facility located either totally or partially in surface water?

Is the facility completely surrounded by areas of higher elevation?

1-Year 24-Hour Rainfall in Inches

Distance to Nearest Downslope Surface Water

Physical State of Waste

\* \* \*

### 3 CONTAINMENT

#### Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:



#### 4 WASTE CHARACTERISTICS

##### Toxicity and Persistence

Compound(s) evaluated

Compound with highest score:

##### Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Basis of estimating and/or computing waste quantity:

\* \* \*

#### 5 TARGETS

##### Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Is there tidal influence?

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

Total population served:

Name/description of nearest of above water bodies:

Distance to above-cited intakes, measured in stream miles.

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

*NONE*

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

\* \* \*

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

\* \* \*

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi                      0 to 1 mi                      0 to 1/2 mi                      0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less: ~

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?